REMARKS

The allowance of claim 26 is gratefully acknowledged.

Claims 1, 4, 13, 19, 23 and 25 have been amended. Claims 1-23 and 25-26 are pending in the application, of which claim 26 has been allowed. Applicants reserve the right to pursue the original claims and other claims in this application and in other applications.

Claims 1-23 and 25 stand rejected under 35 U.S.C. 103 as being unpatentable over Owen in view of Jacot. The rejection is respectfully traversed.

Claim 1 recites a low-frequency vibration control system. The system comprises an electromagnetic "actuator consisting essentially of an armature, a magnet coil and a flux sensor" and a digital control system. According to claim 1, the digital control system is "for causing a force-linearized flux to be generated in a gap between said armature and said magnetic coil, as a function of sensed vibration, said control system comprising logic for defining a non-linear value of flux demand so as to yield an accurate linear control-demand-to-output-force relationship." Applicants respectfully submit that the cited combination fails to disclose, teach or suggest the claimed invention.

Initially, Applicants note that the actuator of the claimed invention consists "essentially of an armature, a magnet coil and a flux sensor." Thus, the claimed invention defines what is commonly referred to in the art as a single-sided magnetic actuator. The cited combination, on the other hand, discloses what is commonly referred to as a double-sided actuator. See Jacot Patent Col. 6, l. 16 to Col. 7, l. 14; and FIGS. 5-6. Applicants respectfully submit that the differences between a single-sided magnetic actuator and a double-sided magnetic actuator are substantial. A double-

sided magnetic actuator is known to have a linear flux-to-force relationship; since the net force output is the difference of two quadratic expressions -- the difference (derivative) of a quadratic is a linear relationship.

A single-sided actuator is more difficult to use, because it has a non-linear quadratic flux-to-force relationship. As such, the claimed invention requires a digital control system "comprising logic for defining a non-linear value of flux demand so as to yield an accurate linear control-demand-to-output-force relationship." This is simply not found in the cited combination, which is another reason why the claimed invention is patentable over the cited combination.

In the present invention, the nature of the single-sided armature-magnet configuration is such that the force is directly proportional to the square of the flux. It is indeed a very non-linear relationship. For this reason, the control circuit includes a specific process prior to the flux-loop where the square-root of the force demand is formed, and the flux demand is in turn defined from this square-root.

The resultant flux-demand and the achieved values of flux are then such that there is a linear relationship between the desired force and the delivered force. The flux itself is not linearly related to the force demand – the value of flux has been defined so as to linearize the demand-force to force-achieved relationship (a force-linearized flux). There is no disclosure of this concept in either of the two cited references.

Applicants respectfully submit that the cited combination fails to disclose, teach or suggest the claimed invention for at least these reasons. Accordingly, Applicants respectfully submit that claim 1 is allowable over the cited combination.

Claims 2 and 3 each depend from claim 1 and are allowable along with claim 1 for at least the reasons set forth above and on their own merits. Claims 4-23 and 25

also include similar limitations as claim 1. Therefore, for at least reasons given above with respect to claim 1, claims 4-23 and 25 are allowable over the cited combination. The rejection should be withdrawn and claims 1-23 and 25 allowed.

In view of the above amendment, applicant believes the pending application is in condition for allowance.

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Respectfully submitted,

By _____

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